

IN THE CLAIMS

We claim :

1. A method comprising:
forming a solder over a substrate;
placing said solder in contact with an input/output connection of a die;
heating said substrate and said die with microwave energy to reflow said solder; and
forming a mechanical joint between said substrate and said die.
2. The method of claim 1 wherein frequency of said microwave energy is swept very rapidly.
3. The method of claim 1 further comprising mixing said microwave energy by moving said substrate and said die during said heating.
4. The method of claim 1 further comprising mixing said microwave energy by stirring with a reflective material.
5. The method of claim 1 further comprising activating flux prior to said reflowing of said solder.
6. The method of claim 1 wherein said input/output connection is a

bump.

7. The method of claim 6 wherein said solder comprises an eutectic solder and said bump comprises a high Lead solder.

8. The method of claim 6 wherein said solder comprises a no-Lead solder and said bump comprises Alternate Ball Metallurgy (ABM).

9. A method comprising:
forming a final passivation layer over a die;
removing said final passivation layer over a bond pad of
said die;
forming an Under Bump Metallurgy (UBM) over said bond
pad and said passivation layer;
forming a photoresist over said UBM;
uncovering a first portion of said UBM by selectively removing said
photoresist, said first portion disposed over said bond pad;
covering said first portion of said UBM by selectively forming a first
solder;
removing rest of said photoresist;
removing a second portion of said UBM, said second portion not
covered by said first solder;
reflowing said first solder into a bump;
placing said bump in contact with a second solder on a substrate; and
reflowing said second solder with microwave energy.

10. The method of claim 9 wherein said microwave energy has variable

frequency.

11. The method of claim 9 wherein said reflowing of said first solder into said bump is with microwave energy.

12. The method of claim 11 wherein said microwave energy has variable frequency.

13. The method of claim 9 wherein said reflowing of said second solder is at a temperature that is about 50 degrees Centigrade lower than said reflowing of said first solder.

14. A mechanical joint comprising:
a bump on a die; and
a solder on a substrate wherein said solder was reflowed by microwave energy.

15. The mechanical joint of claim 14 wherein said microwave energy has variable frequency.

16. The mechanical joint of claim 14 wherein said bump was reflowed by microwave energy.

17. The mechanical joint of claim 16 wherein said microwave energy

has variable frequency.